Steenvreter wins the 9 × 9 Go Tournament

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The 9×9 Go tournament of the 12th Computer Olympiad was held from 11 to 13 June 2007 in Amsterdam. The format was double round robin using Chinese rules, 6.5 komi and 30 minutes thinking time per program per game.

With ten participating programs it was the second largest tournament in Amsterdam. Favourites from the start where the champion program of 2006 CRAZY STONE by Rémi Coulom, and the program MOGO by Sylvain Gelly and Yizao Wang, which despite its first appearance in the Olympiad had already built up an impressive track record in various online tournaments and against strong human opponents on KGS. Among the other programs were the four times Olympiad winning program GO INTELLECT by Ken Chen, and veterans such as INDIGO and GOLOIS. Other new participants were the programs GGMC GO by Hideki Kato and STEENVRETER by Erik van der Werf.

2006 and 2007 have been remarkable years for computer Go. Especially on the 9×9 board the increase in the playing strength has been impressive; the best programs are now are able to achieve dan-level play which only a few years ago most people would not have thought possible in such a short time span. This spectacular increase in strength is in large due to the combination of well-known Monte Carlo techniques with the new UCT algorithm of Kocsis and Szepesvari. Although Monte-Carlo techniques were already popular for quite a few years its success had remained somewhat limited because of difficulties in combining it with tradition tree-search. The UCT algorithm has turned out to be the missing piece of the puzzle which now provides an elegant solution to grow trees and obtain convergence to optimal minimax solutions. In this years tournament at least 8 of the contenders had implemented a variant of UCT, the others consistently finished in the bottom ranks.

The tournament was very exciting and especially the top 3 appeared to be very close in strength. On the first day STEENVRETER lost a point against GO INTELLECT due to a bug. In the following days STEENVRETER lost none of its games and only tied once against MOGO. The point lost against GO INTELLECT could have been fatal, but CRAZY STONE managed to win both its games against MOGO while losing a point against INDIGO. STEENVRETER then defeated CRAZY STONE twice to win the gold medal. MOGO and CRAZY STONE tied for the second place and in the play-off MOGO took revenge, winning both extra games against CRAZY STONE for the silver medal. For more information, the complete final standings and a cross-table of individual results are shown in Tables 1 and 2.

Although a bit speculative, the most important distinguishing features between the top programs were probably in the knowledge used for move ordering, tree expansion, and play-outs. From the top-3, STEENVRETER had the most
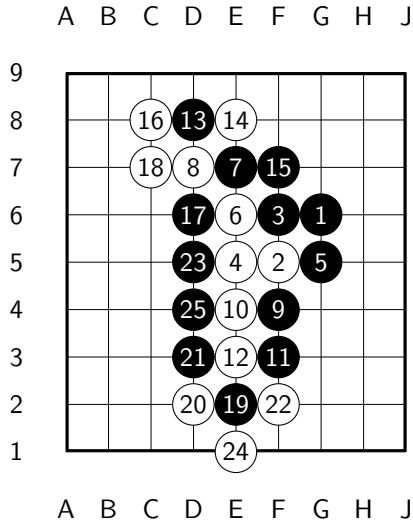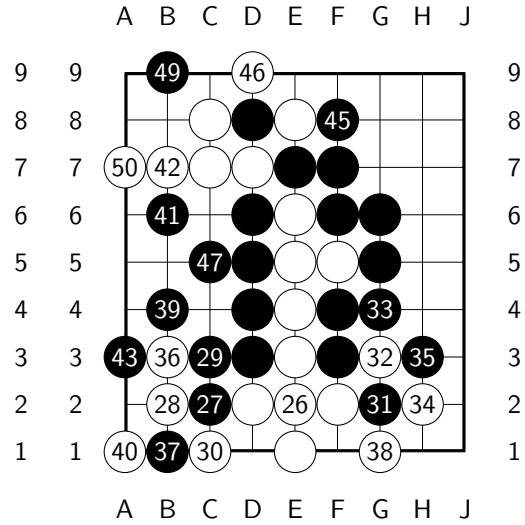
Figure 1: Steenvreter-MoGo, moves 1-25

Figure 2: Steenvreter-MoGo, moves 26-50

(44) at (32)   (48) at 31

end-game knowledge, which enabled it to get earlier and more accurate detection of final positions. Further, MoGo may have been a bit handicapped by using a machine with 'only' 2 processors (compared to 4 processors for Steenvreter and Crazy Stone). Distinguishing features with the rest of the field were more mundane, at least in part, coming down to things like poor time allocation, not using multi-threading, and bugs.

One of the most exciting and difficult games of the tournament was between Steenvreter and MoGo. The game was interesting from the start because Steenvreter deviated from opening at tengen (the center). Nowadays most 9×9 programs start all their games at tengen, which is by many believed to be the best possible opening move. The game is shown in Figures 1 to 3.

After the first 12 moves it is clear that a quiet game would favour White, so Black creates some complications by sacrificing 13 for the cut at 17. Defending with move 21 at 22 is not an option because White's area on the left would simply be too large. Consequently Black has to squeeze White's central group, which makes the fight quite complicated.

In the continuation the game goes back and forth with subtle mistakes on both sides. White 30, 32, and 34 are all questionable moves that probably should have been played differently. At move 39 Black probably could have done better by capturing at D1.

According to Steenvreter White was ahead until move 50 and playing 50 at 52 probably would have won the game. MoGo's last chance was probably at move 52 where it should directly have gone for the fight at 54. Finally, in an exchange of 3 consecutive captures, Steenvreter devoured White's upper left group after which MoGo resigned the game.

For more information about the events and to view more games, the reader is invited to visit the Olympiad website at http://amsterdam2007.icga.org/.
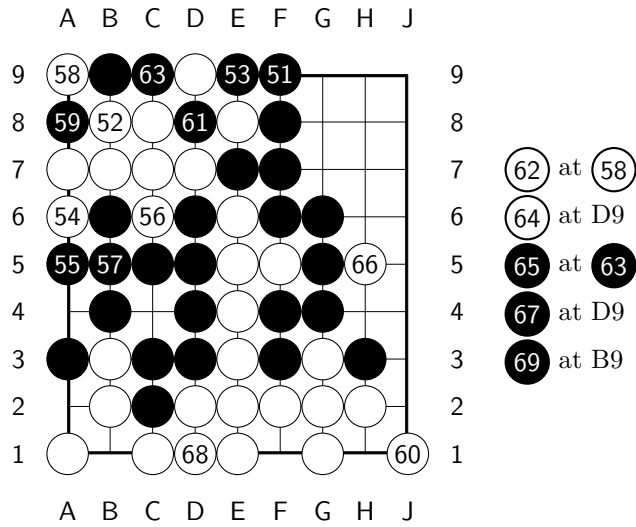
Figure 3: STEENVRETER - MoGo, moves 51-69

Rank	Program	Author(s)	Country	Wins
1	STEENVRETER	E. van der Werf	The Netherlands	16
2	MoGo	S. Gelly, Y. Wang	France	15
3	CRAZY STONE	R. Coulom	France	15
4	INDIGO	B. Bouzy	France	10
5	MANGO	G. Chaslot, J-T. Saito	The Netherlands	9
6	GOLOIS	T. Cazenave	France	9
7	GO INTELLECT	K-H. Chen	USA	7
8	GGMC Go	H. Kato	Japan	6
9	ATARIST	J. de Koning	The Netherlands	2
10	GoKing	J-C. Yan	Taiwan	1

Table 1: Participants and final standings.

Rank	Program	1	2	3	4	5	6	7	8	9	10
1	STEENVRETER		1	2	2	2	2	1	2	2	2
2	MoGo	1		0	2	2	2	2	2	2	2
3	CRAZY STONE	0	2		1	2	2	2	2	2	2
4	INDIGO	0	0	1		1	1	2	1	2	2
5	MANGO	0	0	0	1		1	2	2	1	2
6	GOLOIS	0	0	0	1	1		2	1	2	2
7	GO INTELLECT	1	0	0	0	0	0		2	2	2
8	GGMC Go	0	0	0	1	0	1	0		2	2
9	ATARIST	0	0	0	0	1	0	0	0		1
10	GoKing	0	0	0	0	0	0	0	0	1	

Table 2: Cross-table main tournament. Play-off MoGo - CRAZY STONE (2-0).